

# The Other Part of the Equation: Assessing a Fund's Risk

*Editor's Note: While this article is from 1989, and some of the mutual fund names have changed or the funds have merged or closed, the concepts of risk assessment still apply.*

Often, it is all too tempting to evaluate a mutual fund solely based on its rate of return over some period of time. Typically, funds that have recently provided very high returns are rewarded with an increased inflow of investment dollars.

Unfortunately for investors, return performances are only a piece of the puzzle of identifying mutual funds that will be winners in the future. For example, consider the 44 Wall Street Fund. From 1978 to 1980, the fund returned 200%. Investors flocked to the fund, and by the end of 1983, the fund was managing nine times its 1978 net assets (actual returns accounted for only 25% of this growth). Unfortunately for its investors, the fund lost 83% of its value from 1981 through 1987. During the same period, the S&P 500 index returned 148%. The fund, which is now under new management, currently oversees only \$7 million. *Editor's Note: The 44 Wall Street Fund was eventually merged into the 44 Wall Street Equity Fund, which was then merged into the Matterhorn Growth Fund Income in 1996.*

The part of the equation that some 44 Wall Street investors may have ignored was risk. While there are also subjective factors to consider in evaluating a specific fund, all analysis should start with performance—both return *and* risk.

Because risk can be hard to define and measure, it is sometimes overlooked. One problem is that risk means different things to different people. To many professional investors, risk is defined in terms of uncertainty of the return, either on an absolute basis or relative to some other benchmark such as the S&P 500. Individual investors sometimes think of risk in terms of losing their original investment. Others think of risk as the chance of not obtaining some minimum rate of return—often the return on a money market portfolio. Regardless of how risk is defined, every investor should also think of risk in terms of their investment time horizon. Time horizon is a critical factor in evaluating investment risk.

This article reviews several ways of defining risk and applies these definitions to the evaluation of specific mutual fund investments. Generally, risk should be evaluated by each investor as it relates to their total portfolio. In reality, some investors incorrectly evaluate risk for each individual investment rather than for their aggregate portfolio. The ideas discussed below are presented in the context of evaluating individual mutual funds; however, they can—and should—also be applied to the

evaluation of an investor's total portfolio.

## Defining Risk

Most professional investors measure risk in terms of uncertainty or volatility. Typically, volatility is measured by standard deviation. Standard deviation measures the amount by which most actual returns varied around the average return. For instance, if the average annual return for a fund were 15%, and its standard deviation was 5%, that would mean that most of the actual returns fell between 10% and 20%. A high standard deviation implies that, historically, returns have varied over a wide range; thus, there is more uncertainty and therefore more risk.

Standard deviation can occasionally be misleading when evaluating risk. Sometimes a fund can exhibit relatively high volatility around a high average return. However, such a fund may still exhibit better downside performance than another fund that generally did not do as well but was more consistent. For example, consider two Vanguard funds, the Windsor fund and the Fixed Income Investment Grade Bond Portfolio fund, during the 10 years that ended December 31, 1988. The performance of each fund over this 10-year period is depicted in **Table 1**.

	<b>Vanguard Windsor</b>	<b>Vanguard Fixed Income Investment Grade</b>
Average one-year return	21.4%	11.3%
Standard deviation	15.4%	10.7%
Number of negative return years	3	7
Worst year	(6.4)%	(8.7)%
Average loss in negative years	(3.8)%	(2.7)%

*\*1/79 through 12/88. Figures are based on one-year rolling periods measured quarterly (37 periods).*

As you can see from the table, Windsor had a much higher standard deviation. However, it had far fewer negative years and the average losses were not materially greater than the losses suffered by the bond fund. Most investors would view the Windsor fund over this period of time as the lower risk

fund despite its higher standard deviation.

Beta is another risk measurement used by professional investors. It is usually only reported for stock funds. As it is commonly used, it provides a measure of a stock fund's volatility relative to the stock market, usually defined as the S&P 500. Beta is not a measure of total risk but rather of risk relative to the stock market. A beta of 1.0 implies that a fund's price tends to move in the same proportion and direction as that of the stock market. A beta of less than 1.0 assumes less market volatility, and a beta of greater than 1.0 assumes greater volatility. Most stock funds' betas range from 0.5 to 1.5. Although portfolio managers and some individual investors use beta to measure different types of market risk, its usefulness for most individual investors is limited to evaluating relative stock market risk in stock funds.

One significant problem with beta (besides the fact that it is not a measure of total risk) is that a fund's beta may sometimes change. This can happen if a manager changes his investment approach in certain market environments or if a fund's investment style moves with the market to a greater degree in some types of environments than others. Because many sources of mutual fund statistics report betas based on only one time period (usually the trailing three or five years), it can be difficult to get a handle on the market risk of certain funds using published betas.

For many individual investors, the risk of negative returns is the biggest concern. In practice, analyzing a fund's performance history to identify the past probability of losses is one of the most practical ways of understanding risk, particularly for the individual investor. In the example in **Table 1**, notice that the Windsor fund exhibited only three losing periods over the past 10 years, out of a total of 37 one-year periods (rolling one-year returns were determined quarterly, so that the first return covered December 31, 1978, to December 31, 1979, the second return covered March 31, 1979, to March 31, 1980, and so on). As a point of comparison, the S&P 500 experienced eight down periods out of 37, with an average loss of 8.1%. This sort of comparison can give many investors a deeper insight into a fund's relative and absolute risk than can be provided by standard deviation alone.

One other measure of risk that should be examined carefully by all investors is time horizon. Over the long run, the chance of losing money in any investment declines. For example, in the stock market, the chance of losing money over a one-year time period has been about 30%. This is based on S&P 500 data going back to 1926. However, the odds of losing money over a five-year period are only 12%. Over a 10-year period they drop farther, to 4%. Similarly, the odds of stocks underperforming Treasury bills have been 38% over any one-year period but only 19% over 10-year periods.

Thus, a highly conservative investor who must liquidate his portfolio in one year should have little

allocated to stocks. The same investor who won't need to access their portfolio for 10 years can initially justify a much higher stock allocation (ultimately driven by their specific investment objectives). Of course, a long-term time horizon doesn't necessarily ensure having the psychological risk tolerance to ride all the ups and downs that will occur along the way.

## Things to Keep in Mind When Evaluating Risk

In evaluating any fund's performance, the period analyzed should be long enough to be meaningful. Generally, at least five years of performance with the current manager is a minimum, although even that is short. Since there are some excellent funds in most fund categories with 10-year records or longer, there is rarely a need to invest in a newer fund. That's not to say there aren't some great new funds, but it makes sense to see them prove themselves first. The managers of some new funds can provide long-term track records based on similarly managed individual accounts. These can be relied on but be careful to explore exactly what was included in assembling the track record; the track record should be accurate and representative.

Volatility and risk statistics are available from services such as Morningstar ([www.morningstar.com](http://www.morningstar.com)) as well as AAI's annual **Guide to the Top Mutual Funds**.

Historical probability of losses can be easily calculated. In order to base this analysis on a meaningful number of time periods, rolling one-year periods should be looked at rather than just calendar years. Using each calendar quarter as the start of a new one-year period allows for 37 one-year periods in any 10-year time frame.

I have provided these measures of risk for a number of the more successful funds in **Table 2**.

**Table 2.**  
**Risk Statistics for Selected Top Funds with 10-Year Records**  
**(Based on returns from 1/79 through 12/88; each calendar quarter marks**  
**the start of a new 1-year or 3-year period.)**

	Based on 1-Year Periods					Based on 3-Year Periods			
	Beta*	Average 1-Year Return (%)	Standard Deviation (%)	No. of Loss Years	Average Loss in Loss Years (%)	Worst 1-Year Return (%)	Average 3-Year Return (%)	Standard Deviation (%)	Worst 3-Year Return (%)
<b>Growth Stock Funds</b>									
20th Century Select	1.4	25.2	30.9	9	(12.7)	(21.2)	86.0	37.2	34.4
Tudor	1.4	22.9	29.0	9	(10.8)	(23.9)	83.9	43.9	24.5
Manhattan**	1.1	20.6	21.3	8	(8.6)	(14.4)	76.6	26.4	39.1
Mathers	1.1	19.0	20.5	7	(12.2)	(25.4)	54.9	25.6	6.6
<b>Value-Oriented Stock Funds</b>									
Partners	0.8	20.1	14.5	4	(4.1)	(7.3)	72.3	17.4	39.1
Selected American Shares	0.7	16.7	14.0	8	(3.4)	(5.8)	67.4	26.4	19.5
Mutual Shares	0.6	20.9	13.6	2	(6.0)	(6.3)	75.7	18.4	37.7
Vanguard Windsor	0.8	21.4	15.4	3	(3.8)	(6.4)	84.2	24.1	41.8
<b>Income-Oriented Stock Funds</b>									
SAFECO Income	0.8	18.1	15.6	6	(5.3)	(8.5)	70.1	22.5	33.1
Lindner Dividend	0.4	21.4	14.7	1	(4.1)	(4.1)	86.2	33.3	35.6
Evergreen Total Return	0.7	19.2	16.2	6	(4.1)	(9.1)	76.4	25.4	26.6
<b>Small and Medium Size Company Stock Funds</b>									
Pennsylvania Mutual	1.2	21.0	25.2	5	(9.7)	(20.1)	75.3	34.0	29.9
Acorn	1.1	19.2	19.8	7	(8.6)	(17.8)	63.5	23.4	23.3
Evergreen	1.2	21.4	23.3	9	(6.1)	(16.6)	71.1	23.6	34.7
Nicholas	1.0	22.9	23.0	6	(5.1)	(11.5)	84.1	36.0	31.0
<b>International Stock Funds</b>									
Scudder International	n/a	20.1	24.1	10	(8.0)	(18.0)	75.5	48.3	3.9
<b>Balanced Funds</b>									
Vanguard Wellington	0.7	16.8	13.7	7	(1.6)	(4.0)	64.9	19.7	25.6
Vanguard Wellesley	0.5	14.7	11.4	3	(2.4)	(5.1)	59.1	19.8	18.8
<b>High-Yield Bond Funds</b>									
Fidelity High Income	n/a	14.1	13.3	3	(4.5)	(8.7)	58.1	21.4	9.6
Vanguard Fixed Inc. Hi-Yield	n/a	12.6	10.4	3	(2.7)	(5.3)	49.3	14.2	15.9
<b>Long-Term Investment-Grade Bond Funds</b>									
T. Rowe Price New Income	n/a	10.8	7.6	2	(1.9)	(3.4)	40.5	10.6	18.7
Scudder Income	n/a	11.1	11.7	5	(5.1)	(10.6)	44.9	17.7	4.6
Vanguard Fixed Inc. Inv. Grade	n/a	11.3	10.7	7	(2.7)	(8.8)	44.9	14.6	13.2
<b>Long-Term Municipal Bond Funds</b>									
T. Rowe Price Tax-Free Inc.	n/a	8.2	11.5	11	(3.8)	(6.7)	33.2	15.5	(4.2)
SteinRoe Managed Municipals	n/a	10.1	16.2	10	(8.6)	(16.1)	43.7	26.8	(20.3)
<b>Intermediate-Term Municipal Bond Funds</b>									
Fidelity Limited Term Muni.	n/a	7.9	9.9	9	(4.5)	(9.2)	32.1	17.1	(8.8)
Vanguard Intermediate-Term Muni.	n/a	7.1	12.0	9	(8.9)	(15.6)	29.9	20.3	(18.3)
<b>Benchmarks</b>									
S&P 500	1.0	17.5	18.2	8	(8.1)	(13.1)	64.2	24.4	25.0
Vanguard Prime Money Market	n/a	10.3	3.2	0	n/a	n/a	34.9	9.9	22.0
Salomon Brothers Bond Index†	n/a	11.3	11.9	6	(5.7)	(13.6)	47.2	18.2	5.0

\*Average betas are based on all 3-year periods that started with a calendar quarter over the past 10 years—29 periods. Betas are not meaningful for bond funds, and are therefore not reported.

\*\*Based on 39 quarters of data, the period of time during which the current manager has managed the fund.

†Data is available for Salomon Brothers Broad-Grade Corporate Bond Index going back to 1980. Prior to 1980, Salomon Brothers High-Grade Corporate Bond Index is used.

If you are interested in applying risk analysis to an aggregate portfolio of mutual funds, you will need to contact all of the funds in the portfolio to get their quarterly total returns. This information can be used to construct weighted total returns for the portfolio (add each fund's return for a given

quarter multiplied by the percentage that the fund represents in the total portfolio), which can then be the basis for a risk analysis.

For investors with time frames in excess of one year, the same concepts can be based on rolling periods of longer than one year. **Table 2** also provides information based on three-year periods.

In applying risk analyses such as those described here, common sense and judgment must always supplement the findings. In the case of 44 Wall Street, an understanding of the manager's investment approach would have indicated high risk. The fund was not well-diversified, often making big bets on a few stocks in volatile industries. The fund also had the ability to leverage the portfolio with debt. A close reading of the prospectus and some understanding of the fund's investment philosophy can tell you something about the underlying risk.

Generally, the longer the fund's track record, the smaller the chance that the fund's risk profile does not accurately reflect its true risk. Thus, common sense and personal judgment decline in importance as the track record lengthens.

## Some General Conclusions About Risk

There are several generalizations that can be made about risk in mutual fund investing:

- Bond funds vs. stock funds: If your time horizon is short—say, one year—there is no question that bond funds are generally safer than stock funds. Based on the one-year data in **Table 2**, bond funds—particularly shorter-term bond funds—over the last 10 years have had fewer loss years than stock funds; when they did experience negative returns, they were generally less than the losses suffered in stock funds. However, over longer investment time periods, such as the three-year periods in **Table 2**, stock funds' riskiness becomes less of an issue. In fact, the lowest of the worst three-year returns during the past 10 years were produced by the bond funds. Over the long run, the higher return potential of stocks tends to work in their favor.
- Types of stock funds: Over the long run, aggressive stock funds generally provide higher returns, although they are subject to higher short-term fluctuations. Again, risk is less of an issue for investors with long-term horizons. However, some of the most aggressive stock funds can be somewhat risky even if you have a three- to five-year horizon. Value-oriented funds and income-oriented funds are probably the best buys for those investors with long-term horizons who don't enjoy bumpy rides. Some of these types of funds have done a truly impressive job of controlling risk while still providing long-term returns that are not too far behind the more aggressive funds. The managers probably represent some of the best stock pickers around. As a group, the majority of funds listed in these two categories in **Table 2** have kept risk much

lower than the S&P 500 over the past 10 years.

- High-yield bond funds vs. long-term high-grade bond funds: Over the past 10 years, high-yield funds have been less risky than many long-term high-grade bond funds. At the same time, they have provided better returns. Some investment professionals are concerned, however, that past risk/return relationships may not hold because of changes in this market in recent years.

Of course, during any period of time, past relationships may not necessarily hold when comparing risk across different asset classes. However, in the vast majority of situations certain rules will continue to hold. Short-term bonds (one- to five-year maturities) are very low risk. Value-oriented stock funds and income-oriented stock funds are lower risk than the overall stock market.

You should also remember that at any point in time, market conditions can change. Thus, what was generally true in the past, may not be true for a specific period of time. For example, there have been times when bond funds have been far riskier than stock funds even over short time periods.

Because of market uncertainty, the most important risk reduction technique is clearly diversification, both across different asset classes (by investing in different types of funds) and across different market environments (by adopting a long-term investment approach).

*This article was written by Ken Gregory for the April 1989 issue of the AAI Journal. At the time, he was a principal at Litman/Gregory & Co., an investment advisory firm that specializes in evaluating no-load mutual funds.*